# INDEX

JOURNAL OF ANALYTICAL CHEMISTRY

Volume 19, 1964

# JOURNAL OF ANALYTICAL CHEMISTRY
## Volume 19, 1964

(A translation of Zhurnal Analiticheskoi Khimii)


### A

Ackermann, G. - 603
Afanas'ev, M. I. - 1045
Agasyan, P. K. - 1133
Agrest, F. B. - 418
Aidarov, T. K. - 689
Akhmedli, M. K. - 516
Aldarova, N. Sh. - 499
Alimarin, I. P. - 23, 78, 177, 299, 428, 524, 786, 1243, 1363
Alykov, N. M. - 879, 994
Amsheeva, A. A. - 85
Antonova, M. M. - 1310
Antonovskii, V. L. - 226, 696
Anvaer, B. I. - 162, 444
Aurov, A. P. - 1058

### B

Babenko, N. L. - 807, 862, 984
Babkin, M. P. - 1184
Babko, A. K. - 1194
Baev, F. K. - 616
Bagdasarov, K. N. - 622, 1112, 1376
Balakhontseva, V. N. - 699
Balandina, N. S. - 1141
Balyatinskaya, L. N. - 952
Bankovskii, Yu. A. - 42, 380
Baranova, L. L. - 544
Baranova, N. M. - 362
Bardin, M. B. - 1141
Barskii, V. D. - 1072
Baryshnikov, Yu. N. - 102, 1050
Basargin, N. N. - 513, 775
Bashilova, N. I. - 1408
Bashkirova, I. S. - 781
Bednyagina, N. P. - 989
Belov, S. V. - 977
Bel'skii, V. E. - 340
Belyavskaya, T. A. - 1079
Berezkin, V. G. - 358
Bernatskaya, M. V. - 812
Bezinger, N. N. - 1322
Bezrogova, E. V. - 1392
Bezuglyi, D. V. - 85, 254, 353, 561, 817, 961, 1171, 1304
Bikbulatova, R. U. - 1338
Blank, A. B. - 328
Blyum, I. A. - 1192
Bodnya, V. A. - 23
Bodyu, V. I. - 949
Bogdanova, E. S. - 1255
Bokina, V. M. - 585
Boremskaya, S. F. - 911
Brainina, Kh. Z. - 631, 753, 1345
Brikun, I. K. - 194
Bryushkova, I. I. - 334
Budarin, L. I. - 431
Bugaevskii, A. A. - 5, 364
Bukhtiarov, V. E. - 1313
Burlova, M. A. - 1243
Busev, A. I. - 89, 212, 306, 436, 528, 709, 807, 862, 984, 1150, 1255, 1418
Buzlanova, M. M. - 119
Bychkov, L. A. - 1246
Bykhovskaya, M. S. - 464
Bykhovtseva, T. T. - 532, 859
Bykov, I. E. - 1214
Bykova, L. N. - 144, 825

### C

Chalaya, Z. I. - 1194
Chekmareva, I. B. - 358
Chemerisskaya, A. A. - 842
Chepik, M. N. - 807, 984
Chera, L. M. - 42, 380
Cheremukhina, T. A. - 757
Cherkesov, A. I. - 879, 994
Chernyaev, I. I. - 965
Chernysheva, T. V. - 1404
Chudakova, I. K. - 553
Chugunnaya, N. K. - 911
Chupakhin, M. S. - 763

### D

Datsko, V. G. - 347
Davaadorzh, P. - 428
Dedkov, Yu. M. - 17, 128, 299, 495, 724, 846, 1125
Dem'yanovich, V. M. - 232
Dmitrieva, F. I. - 72, 353, 817, 961
Dobychin, S. L. - 692
Dolgina, A. I. - 218
Dolmanova, I. F. - 272
Dranitskaya, R. M. - 712, 959
Drozdov, V. A. - 1095
Dubovskaya, L. V. - 925
Dubrovinskii, V. Ya. - 1076
Dubrovskaya, G. N. - 922
Dzerzhanovskaya, E. V. - 911
Dzhumaev, R. M. - 406

### E

Efimov, A. A. - 1108
Egorova, N. F. - 331, 612
Egorushkina, M. V. - 553
Elinson, S. V. - 1003
Elizarova, G. L. - 158
Erdenbaeva, M. I. - 916, 1086
Eremina, Z. I. - 480
Ermakova, M. I. - 1219
Ermolenko, I. N. - 390
Evstifeev, M. M. - 1263

### F

Filenko, A. I. - 657
Flippov, É. L. - 259
Filippov, M. P. - 350, 441
Finkel'shtein, E. I. - 503
Finkel'shteinaite, M. L. - 475
Fioletova, A. F. - 804
Fishkis, M. Ya. - 1318
Frolova, Z. S. - 696
Frumina, N. M. - 1323
Furtova, E. V. - 82

### G

Gallai, Z. A. - 1363
Gal'pern, G. D. - 553, 1322
Gavrilko, Yu. M. - 1376
Gavrilov, F. F. - 97
Gavrilova, I. A. - 46
Geits, Rudol'f, A. - 364, 718
Gel'man, N. É. - 334, 548
Gershkovich, R. M. - 654
Gibalo, I. M. - 428
Ginzburg, V. L. - 1013
Gladyshev, V. P. - 123

Glavin, G. G. - 763
Glazunov, M. P. - 268
Glonti, G. G. - 587
Glovadskii, Ya. - 643
Glushchenko, E. L. - 516
Godovannaya, I. N. - 922
Golovina, A. P. - 643
Golovnya, V. A. - 965
Goncharova, N. I. - 622
Gordievskii, A. V. - 259
Gorokhovskii, V. M. - 460
Gorshkov, V. V. - 1009
Gradskova, N. A. - 1164
Grankina, M. Ya. - 51
Grekov, A. P. - 238
Gribova, E. A. - 1320
Grinberg, I. V. - 574, 1290
Gromov, L. A. - 171
Guglya, V. G. - 929
Gur'ev, I. A. - 33, 1333
Gurevich, V. G. - 480
Gusarskii, V. V. - 483
Gusev, S. I. - 662, 743, 898
Gushchina, L. F. - 441

## H

Hamid, Sherif Abdel - 177

## I

Iashvili, E. V. - 959
Ievin'sh, A. F. - 42, 380
Ignat'eva, N. G. - 205, 1182
Iordanov, N. - 202
Ivanov, N. P. - 1178
Ivanov, V. I. - 963
Ivanov, V. M. - 212, 1150
Ivanova, N. M. - 842
Ivanova, V. N. - 82
Ivanova, Z. I. - 68
Ivonina, O. M. - 595

## K

Kabannik, G. T. - 911
Kadaner, D. S. - 521
Kalabina, A. V. - 489
Kalmykova, I. S. - 60
Kalyazin, E. P. - 362
Kamernitskii, A. V. - 1317
Kamneva, A. I. - 1295
Karakozova, E. V. - 1116
Karalova, Z. K. - 236
Karbainov, Yu. A. - 1250
Karpov, O. N. - 1062
Karyakin, A. V. - 1146, 1382
Kataev, G. A. - 1180
Kazymova, A. M. - 460
Khadeeva, L. A. - 1370
Khariton, Kh. Sh. - 949
Kheifets, L. Ya. - 561, 1171, 1304
Khmel'nitskaya, E. Yu. - 1320
Khoe, Nguen Dyk - 837
Khomenko, N. E. - 254
Khomutov, N. E. - 1083
Khristoforov, B. S. - 919
Khromov-Borisov, N. V. - 601
Khudyakova, T. A. - 1058
Kibisov, G. I. - 1105
Kibisova, T. G. - 1379
Kilina, Z. G. - 1180
Klassova, N. S. - 114
Kletenik, Yu. B. - 190
Klimova, V. A. - 1167, 1272
Klygin, A. E. - 395, 609
Knyazev, D. A. - 251
Knyazeva, E. M. - 834
Kodochigov, P. N. - 268
Koev, E. - 981
Kogan, F. I. - 68
Kokorin, A. I. - 402
Kolchina, N. A. - 1095
Kolesnikov, I. M. - 1318
Kolosova, I. F. - 1079
Kolyada, N. S. - 395
Komar', N. P. - 5, 133, 1329
Kondaurova, G. A. - 464
Kon'kova, O. V. - 63
Kononenko, L. I. - 770
Konyushko, V. S. - 940
Kornev, K. A. - 238
Koroleva, V. I. - 51
Koronelli, T. V. - 109
Korotkina, L. G. - 616
Kost, A. N. - 109
Kovalenko, P. N. - 68, 622, 676, 1112, 1263, 1372
Kozlovskii, M. T. - 194
Kozyreva, N. A. - 1178, 1406
Krasil'shchik, V. Z. - 1029
Kreimer, S. R. - 1040
Kreshkov, A. P. - 144, 499, 670, 825, 952, 1095, 1209, 1400
Krtil, I. - 402
Krylova, V. I. - 1058
Ku Tkhan'Long - 679
Kubasova, N. B. - 1105
Kucherov, V. F. - 746, 855
Kugai, L. N. - 911
Kukisheva, T. N. - 513
Kulev, I. I. - 323
Kumok, V. N. - 1076
Kunenkova, E. N. - 890
Kuril'chikova, G. E. - 1389
Kuteinikov, A. F. - 1205, 1406
Kutsenko, L. M. - 1228
Kuznetsova, L. V. - 692
Kvasov, A. A. - 102

## L

Ladygin, B. Ya. - 467
Larina, N. I. - 548, 842
Laskina, E. D. - 571
Lauér, R. S. - 181
Lavrukhina, A. K. - 367
Lazarev, A. I. - 1033
Lazareva, V. I. - 1033
Lebedeva, N. V. - 75
Leonova, L. L. - 114
Levshin, L. V. - 643
Levskii, L. K. - 1022
Lipchinskii, A. P. - 323
Litovtseva, I. I. - 162
Liu, Chen-chuang - 712
Livshits, D. M. - 1013
Lobanov, V. N. - 1189
Lomekhov, A. S. - 1040
Lomonosov, S. A. - 989
Long, Ku Tkhan - 902
Longin, M. L. - 390
Lotareva, V. I. - 167
Lukashenko, V. I. - 254
Lukin, A. M. - 1404
Luk'yanov, V. F. - 834, 1176
Lundin, B. N. - 685
Lushchik, V. I. - 571, 839
Luskina, B. M. - 1164
L'vov, A. M. - 1272
L'vova, F. P. - 489
Lyatte, N. P. - 574
Lysenko, S. A. - 1205

## M

Makarova, S. V. - 786
Makarochkina, S. M. - 598
Makarov, A. A. - 1277
Makarov, V. I. - 125, 362
Makarova, S. V. - 78, 524
Malkina, T. G. - 619
Malkova, O. P. - 285
Malofeeva, G. I. - 139, 729
Malolina, T. M. - 319
Mamonova, G. F. - 1086
Markevich, V. S. - 1054
Markov, L. K. - 564
Markova, I. V. - 370
Maslennikov, A. S. - 1315

Medvedeva, A. M. - 1243
Mel'chakova, N. V. - 650
Mel'nikov, Yu. A. - 667
Meshkova, O. V. - 353
Mesyats, N. A. - 894
Mikhailenko, Yu. Ya. - 1209
Mikhailov, P. M. - 1040
Mikhailova, T. A. - 601
Milyukova, M. S. - 1238
Mirkind, L. A. - 1295
Mitrofanov, V. Z. - 1277
Mittsel', Yu. A. - 643
Molodkin, A. K. - 965
Moroshkina, T. M. - 296, 667, 1412
Morozova, L. A. - 1363
Morozova, R. P. - 654
Morozova, S. N. - 116
Moshchanskaya, N. G. - 1176
Moskvina, A. A. - 692
Murashova, V. I. - 1396
Mustafin, I. S. - 149, 1323
Muzgin, V. N. - 97
Myasoedov, B. F. - 92

## N

Naku, A. - 306, 436, 709
Naumenko, V. A. - 718
Nazarenko, I. I. - 210, 831, 911
Nazarenko, V. A. - 75, 793, 1359
Nazarov, B. F. - 894
Nelyapina, N. I. - 1408
Nemtseva, M. F. - 1351
Nemodruk, A. A. - 735
Nenarokov, A. V. - 907
Nevskaya, V. N. - 670
Nevzorov, A. N. - 1246
Nigai, G. K. - 646, 789
Nigmatullin, R. Sh. - 506
Nikitina, O. N. - 907
Nikolaev, G. I. - 55
Nikolaeva, É. M. - 662
Nikolaeva, E. R. - 1133
Nikol'skii, B. P. - 1308
Norkus, P. K. - 478
Noskov, V. V. - 1072
Novikov, A. I. - 314, 503

## O

Obtemperanskaya, S. I. - 119, 837
Okhotnikov, B. P. - 444
Oradovskii, S. G. - 800
Osipov, V. A. - 171
Ospanov, Kh. K. - 153
Ostroumov, É. A. - 198, 890, 999, 1137
Ovechkin, G. V. - 38

## P

Pakhomova, K. S. - 1009
Palei, P. N. - 92
Palii, A. I. - 1272
Pal'shin, E. S. - 92
Panova, G. V. - 1317
Panteleev, E. S. - 907
Pashchenko, A. I. - 277
Pavlova, M. - 202
Pechentkovskaya, L. E. - 831
Pendin, A. A. - 1308
Per'kov, I. G. - 133, 1329
Peshkova, V. M. - 205, 272, 650, 1182
Petrokova, M. N. - 1196
Petrov, A. V. - 1146, 1382
Petrova, M. P. - 218
Petrova, T. V. - 775
Pevtsov, G. Z. - 1029
Pevzner, I. D. - 825
Plotnikov, V. I. - 1101
Podchainova, V. N. - 590, 619, 989
Pokrovskaya, T. E. - 331
Poladyan, V. É. - 226
Poltinina, R. M. - 699
Poluéktov, N. S. - 181, 770, 873, 1223
Poluéktova, E. N. - 793, 1359
Polyachenko, V. M. - 121
Polyak, L. Ya. - 781, 1367
Polyanskii, N. G. - 106, 1054, 1108, 1415
Ponomarenko, A. A. - 1300
Ponomarenko, V. A. - 564
Ponomarev, Yu. P. - 817
Popov, B. I. - 1300
Popova, O. I. - 911
Poryvaeva, G. N. - 1315
Potapov, V. M. - 232
Potapova, L. G. - 746, 855
Preobrazhenskaya, E. A. - 561, 961, 1171, 1304
Putvinskaya, T. M. - 1379

## R

Razumov, V. A. - 689
Reznik, B. E. - 540
Rezova, A. T. - 1003
Rodin, S. S. - 367
Roizenblat, E. M. - 631, 1345
Rozhdestvenskaya, Z. B. - 153
Rozova, M. I. - 692
Ruch'eva, N. I. - 350
Rudenko, B. A. - 746, 855
Rudnev, N. A. - 139, 426, 729
Rudnevskii, N. K. - 285
Rudol'fi, T. A. - 571, 714, 839
Rudzit, G. P. - 89, 306, 528, 709
Rukhadze, E. G. - 1317
Rumyantseva, T. I. - 431
Rusanov, A. K. - 262
Ruzicka, J. - 868
Ryabchikov, D. I. - 184, 210, 593, 963, 1033, 1125, 1389
Ryabchuk, L. N. - 116
Ryabov, V. D. - 568
Ryabov, V. P. - 1018
Ryabova, A. S. - 521
Rybakova, Yu. A. - 989
Ryskulbekova, R. M. - 1133

## S

Sadova, G. F. - 82
Sagadieva, K. Zh. - 628
Sagitullin, R. S. - 109
Sakharov, V. M. - 162
Salamin, A. A. - 574
Salmin', L. A. - 1295
Samokhvalov, G. I. - 121
Satarina, G. I. - 1013
Savvin, S. B. - 17, 299, 521, 845, 1125
Sayushkina, E. N. - 375
Semenov, A. D. - 347
Semukhina, G. V. - 1072
Senyavin, M. M. - 883
Serdyuk, L. S. - 413
Shaburov, M. A. - 1108
Shakhova, Z. F. - 679, 902
Shapiro, M. Ya. - 356
Sharapova, R. I. - 714, 839
Sharipov, R. K. - 1234
Shchedrina, M. M. - 571
Shcherbakov, V. P. - 281, 1116
Shchurova, L. M. - 743, 898
Sheina, N. M. - 1363
Sherina, G. G. - 431
Shibaeva, N. P. - 236
Shkaravskii, Yu. F. - 291, 473
Shterman, V. S. - 259
Shtifman, L. M. - 585
Shtivel', N. E. - 1054
Shukolyukov, Yu. A. - 1022
Shved, N. A. - 1290
Sidorov, N. V. - 977
Silaeva, E. V. - 1417
Sil'nichenko, V. G. - 72
Sinyakova, S. I. - 1338

Sivanova, O. V. - 149
Smirnaya, V. S. - 413
Smirnova, I. D. - 609
Smirnova, M. N. - 296, 1412
Smolova, N. T. - 144
Snegova, A. D. - 564
Snesarev, K. A. - 222, 343, 486, 1066
Sodolov, A. G. - 360
Sokolov, L. D. - 1112
Sokolovich, V. E. - 1186
Soldatova, L. A. - 1180
Solodovnik, S. M. - 544
Solov'eva, N. V. - 513
Songina, O. A. - 153
Sopkina, A. K. - 568
Sorokina, M. F. - 1083
Stanislavskaya, M. N. - 650
Starovoit, I. A. - 314
Stary, I. - 868
Stepanov, D. E. - 489
Stepin, V. V. - 1417
Stogova, A. V. - 1040
Stolyarov, K. P. - 418
Stromberg, A. G. - 851, 894, 1250
Sudakov, F. P. - 679, 902
Sukhorosova, T. I. - 685
Sushkova, S. G. - 1396
Svetlaeva, V. M. - 703

## T

Talalaev, B. M. - 1081
Talipov, Sh. T. - 646, 789, 1370
Talyzenkova, G. P. - 1317
Tananaiko, M. M. - 288
Taneeva, G. V. - 123
Tarasevich, N. I. - 483
Terent'ev, A. P. - 119, 232, 837, 1164, 1317
Terent'eva, E. A. - 319, 812
Tikhonov, V. N. - 51, 1120
Tikhonova, V. I. - 580
Timerbulatova, M. I. - 919
Tishchenko, M. A. - 770
Titova, I. A. - 486
Todorova, G. I. - 1141
Tomilov, A. P. - 598
Toropova, V. F. - 158
Toul, J. - 205
Trubnikov, V. I. - 358
Tserkasevich, K. V. - 1223
Tserkovnitskaya, I. A. - 532, 859
Tsyganok, L. P. - 540
Tumanov, A. A. - 721
Tumovskii, L. A. - 1209
Turkel'taub, N. M. - 162
Turovtseva, Z. M. - 1282
Tur'yan, Ya. I. - 757, 952

## U

Usatenko, Yu. I. - 1228
Usatova, L. P. - 1101
Usenova, Z. M. - 916, 1086
Usova, É. P. - 222, 343, 1066
Ustinov, V. A. - 370

## V

Varshal, G. M. - 184, 883
Vasil'ev, V. I. - 1400
Vasil'eva, N. L. - 1219
Vasilevskaya, A. E. - 281, 1116
Vasserman, A. M. - 1282
Vasyutinskii, A. I. - 612
Vesnovskaya, G. I. - 1050
Veselago, L. I. - 242
Vigdergauz, M. S. - 1045
Vinarova, L. I. - 75
Vinnik, M. I. - 340
Vinogradova, N. B. - 925
Vinokurova, G. N. - 288
Vitalina, M. D. - 1167
Vitkun, R. A. - 873
Vladzimirskaya, E. V. - 956
Volkov, I. I. - 198, 999, 1137
Volkova, L. P. - 1009
Volodz'ko, V. E. - 119
Volynets, M. P. - 593, 963
Vorob'ev, V. S. - 262
Voronova, T. A. - 654
Vozisova, V. F. - 590
Vyaselev, M. R. - 506

## Y

Yakovlev, Yu. V. - 1197
Yanchevskii, V. A. - 238
Yanotovskii, M. Ts. - 240
Yarovenko, A. N. - 375, 670
Yatsimirskii, K. B. - 654

## Z

Zaikovskii, F. V. - 82
Zakhar'evskii, M. S. - 1308
Zakharov, E. V. - 1318
Zakharov, M. S. - 851, 963
Zarinskii, V. A. - 33, 585, 963, 1333
Zelenina, L. N. - 375
Zelichenko, S. L. - 1404
Zelyukova, Yu. V. - 873
Zeman, A. - 868
Zetkin, V. I. - 1318
Zharova, N. P. - 1406
Zhivopistsev, V. P. - 60
Zhukova, A. N. - 285
Zhukhovitskii, A. A. - 116, 162
Zhukovskii, Yu. G. - 925, 1268
Zhuravlev, G. I. - 46, 395, 609, 703, 1351
Zhuravlev, S. V. - 703
Zil'bershtein, Kh. I. - 907
Zolotareva, L. V. - 676
Zolotavin, V. L. - 97
Zolotov, Yu. A. - 23, 1089

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1964 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 1 January, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Production Control and the Problems of Analytical Chemistry | 1 | 3 |
| Important Functions for the Rapid Calculation of Titration Curves—A. A. Bugaevskii and N. P. Komar' | 5 | 8 |
| The Analytical Application of Bisazo Derivatives of Chromotropic Acid — S. B. Savvin and Yu. M. Dedkov | 17 | 21 |
| Extraction Kinetics (Review) — Yu. A. Zolotov, I. P. Alimarin, and V. A. Bodnya | 23 | 28 |
| High Frequency Titration. Communication 10. Titration of Acids in Aqueous Dioxane Media — V. A. Zarinskii and I. A. Gur'ev | 33 | 37 |
| The Radiation Intensity of the Spectral Lines Emitted by the Plasma of Arc and Spark Discharges on Taking Reabsorption into Account — G. V. Ovechkin | 38 | 43 |
| Studies on 8-Mercaptoquinoline (Thiooxine) and Its Derivatives. Communication 29. The Use of Thiooxine for the Extraction Purification of Reagents from Heavy Metal Impurities — Yu. A. Bankovskii, L. M. Chera, and A. F. Levin'sh | 42 | 48 |
| Determination of Sodium, Potassium, and Calcium in Uranium and Its Compounds by a Flame Photometric Method — G. I. Zhuravlev and I. A. Gavrilova | 46 | 54 |
| Complexometric Determination of Magnesium and Calcium in the Products of the Titanium Industry — V. N. Tikhonov, M. Ya. Grankina, and V. I. Koroleva | 51 | 59 |
| An Atomic-Absorption Method for Determining Zinc in Metals and Alloys — G. I. Nikolaev | 55 | 63 |
| Quantitative Determination of Scandium after Its Separation as an Iodide Complex with Diantipylmethane — V. P. Zhivopistsev and I. S. Kalmykova | 60 | 69 |
| A Spectrophotometric Study of the Compound of Scandium with Xylenol Orange — O. V. Kon'kova | 63 | 73 |
| Electrolytic Separation of Nickel on a Solid Cathode for Analytical Purposes — F. I. Kogan, P. N. Kovalenko, and Z. I. Ivanova | 68 | 79 |
| Determination of Samarium in Different Valence States in Fluorite — V. G. Sil'nichenko and F. I. Dmitrieva | 72 | 84 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Complexometric Determination of Tetravalent Germanium – V. A. Nazarenko, N. V. Lebedeva, and L. I. Vinarova | 75 | 87 |
| Extraction of Fluotantalate with Basic Dyes. Communication 1. Extraction of Microamounts of Tantalum as Crystal Violet Fluotantalate – I. P. Alimarin and S. V. Makarova | 78 | 90 |
| Photometric Determination of Thorium in Natural Materials by Means of Arsenazo III – E. V. Furtova, G. F. Sadova, V. N. Ivanova, and F. V. Zaikovskii | 82 | 94 |
| Determination of Bismuth in Cast Iron by a Photometric or Complexometric Method Using Xylenol Orange – A. A. Amsheeva and D. V. Bezuglyi | 85 | 97 |
| Detection of Molybdenum as a Pyrocatechol Pyridine Complex – A. I. Busev and G. P. Rudzit. | 89 | 102 |
| Separation of Protoactinium from other Elements by Extraction with N-Benzoylphenylhydroxylamine – B. F. Myasoedov, E. S. Pal'shin, and P. N. Palei | 92 | 105 |
| A Chemico-Spectrographic Method for Determining Impurities in Vanadium – V. N. Muzgin, V. L. Zolotavin, and F. F. Gavrilov | 97 | 111 |
| Iodometric Determination of Aryl Magnesium Compounds – Yu. N. Baryshnikov and A. A. Kvasov | 102 | 117 |
| Titrimetric Methods for Determining Diketene and Crotonaldehyde in Each other's Presence – N. G. Polyanskii | 106 | 121 |
| Thin Layer (Aluminum Oxide) and Paper Chromatography of Indole Derivatives – A. N. Kost, T. V. Koronelli, and R. S. Sagitullin | 109 | 125 |
| BRIEF COMMUNICATIONS | | |
| Photometric Determination of Titanium by Means of 2,7-Dichlorochromotropic Acid and Microsamples of Minerals and Rocks – N. S. Klassova and L. L. Leonova | 114 | 131 |
| Chromatographic Determination of Traces of Helium, Neon, and Hydrogen in Air – N. M. Turkel'taub, L. N. Ryabchuk, S. N. Morozova, and A. A. Zhukhovitskii | 116 | 133 |
| Quantitative Determination of Methyl Acrylate by Means of Hexamethyleneimine – A. P. Terent'ev, S. I. Obtemperanskaya, V. E. Volodz'ko, and M. M. Buzlanova | 119 | 135 |
| The Semimicrodetermination of the Iodine Number of Synthetic (α-Oleoyl-β-Stearoyl)-Phosphatidylethanolamine – V. M. Polyachenko and G. I. Samokhvalov | 121 | 136 |
| Oscillographic Determination of Acetaldehyde and Crotonaldehyde in each other's Presence – G. V. Taneeva and V. P. Gladyshev | 123 | 138 |
| An Extraction Spectrophotometric Method for Determining Small Amounts of Cyclohexene in Cylcohexane – V. I. Makarov | 125 | 140 |
| Moscow Seminar on Analytical Chemistry – Yu. M. Dedkov | 128 | 142 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1964 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 2 February, 1964

## CONTENTS

| | PAGE ENG. | RUSS. |
|---|---|---|
| Study of the Systems Cupferron (Its Derivatives)–Water–Chloroform. Communication I. Separate Measurement of Formation and Distribution Constants and of the Molar Extinction Coefficients of Cupferron, Neocupferron, and Benzoylphenylhydroxylamine –N. P. Komar' and I. G. Per'kov | 133 | 145 |
| The Part Played by the Sulfide Surface and Adsorbed $HS^-$ and $S^{2-}$ Ions During Coprecipitation of Cations–N. A. Rudnev and G. I. Malofeeva | 139 | 151 |
| Analysis of Multicomponent Mixtures of Dicarboxylic Acids by Titration in Nonaqueous Solution–A. P. Kreshkov, L. N. Bykova, and N. T. Smolova | 144 | 156 |
| Indicators with Internal Light Filters. Hydrone III–A Mercurimetric Indicator–I. S. Mustafin and O. V. Sivanova | 149 | 163 |
| Polarographic Study of the Electrolytic Oxidation of Unithiol on a Platinum Electrode –O. A. Songina, Kh. K. Ospanov, and Z. B. Rozhdestvenskaya | 153 | 168 |
| Polarographic Catalytic Hydrogen Currents in Solutions of Certain Complex Compounds and the Determination of Beryllium–V. F. Toropova and G. L. Elizarova | 158 | 174 |
| On the Relationship Between Retention Volume and the Dielectric Constant of the Stationary Phase in Gas-Liquid Chromatography–B. I. Anvaer, A. A. Zhukhovitskii, I. I. Litovtseva, V. M. Sakharov, and N. M. Turkel'taub | 162 | 178 |
| A Rapid Method for Determining Small Amounts of Copper and Mercury by Anodic Amperometric Titration with Sodium Diethyldithiocarbamate–V. I. Lotareva | 167 | 184 |
| A Gas Volumetric Method for Determining Metallic Zinc in Zinc Sulfide Preparations –L. A. Gromov and V. A. Osipov | 171 | 189 |
| A Study of the Extraction of Gallium Cupferronate–I. P. Alimarin and Sherif Abdel Hamid | 177 | 195 |
| Location of the Zones of Some Individual Rare Earth Elements on Paper Chromatograms –R. S. Lauér and N. S. Poluéktov | 181 | 199 |
| Gravimetric Determination of Total Rare Earths in Rocks, Minerals, and Alloys–G. M. Varshal and D. I. Ryabchikov | 184 | 202 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| A New Extraction Photometric Method for Determining Titanium. Communication 3. The Use of an Ethanolic Solution of Hydrogen Peroxide. Determination of Titanium in Solutions Containing Fluoride Ions—Yu. B. Kletenik | 190 | 208 |
| The Interaction of Hydroxylamine with Arsenic, Antimony, and Bismuth Compounds—I. K. Brikun and M. T. Kozlovskii | 194 | 212 |
| The Use of Cinnamic Acid in Analytical Chemistry. Communication 5. Precipitation of Uranium and Its Separation from Manganese, Nickel, Cobalt, and Zinc—É. A. Ostroumov and I. I. Volkov | 198 | 216 |
| The Valence of Rhenium in Its Orange-Red Thiocyanate Complex—N. Iordanov and M. Pavlova | 202 | 221 |
| The Valence of Rhenium During Its Reduction—J. Toul, N. G. Ignat'eva, and V. M. Peshkova | 205 | 224 |
| The Valence of Rhenium in Its Thiocyanate Complex—D. I. Ryabchikov and I. I. Nazarenko | 210 | 229 |
| Extraction Photometric Determination of Palladium by Means of 1-(2-Pyridylazo)-Resorcinol—A. I. Busev and V. M. Ivanov | 212 | 232 |
| Analysis of Mixtures of the Methylamines and Ammonia by Gas Liquid Chromatography—M. P. Petrova and A. I. Dolgina | 218 | 239 |
| Quantitative Determination of Amino Acids by Means of Quinhydrone. Communication 1. Determination of ω-Aminoenanthic Acid—É. P. Usova and K. A. Snesarev | 222 | 243 |
| Iodometric and Ferrometric Determination of Cumyl Peroxide—V. L. Antonovskii and V. É. Poladyan | 226 | 248 |
| Spectropolarimetric Analysis. Communication 4. Analysis of Mixtures of Ephedrine and Pseudo-Ephedrine—V. M. Potapov, V. M. Dem'yanovich, and A. P. Terent'ev | 232 | 254 |
| BRIEF COMMUNICATIONS | | |
| Determination of Microamounts of Sulfate Ions in Highly Pure Water—Z. K. Karalova and N. P. Shibaeva | 236 | 258 |
| Quantitative Determination of Dibasic Carboxylic Acid Hydrazides by Potentiometric Titration with Sodium Nitrite—A. P. Grekov, V. A. Yanchevskii, and K. A. Kornev | 238 | 260 |
| Gas Liquid Chromatography of Intermediates in Vitamin A Synthesis—M. Ts. Yanotovskii | 240 | 262 |
| Determination of Trivalent Nickel in Solid Solutions of $Li_xNi_{(1-x)}O$—L. I. Veselago | 242 | 264 |
| CRITICISM AND BIBLIOGRAPHY | | |
| A. J. Moses. Analytical Chemistry of the Actinide Elements | 244 | 266 |
| Arkadii Vladimirovich Pamfilov (On his seventieth birthday) | 245 | 267 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry | 247 | 269 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 3 March, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Study of 5,7-Dibromo-8-hydroxyquinoline Dissociation by an Extraction Method—D. A. Knyazev | 251 | 273 |
| Dynamics of Ion Exchange Adsorption of Microcomponents in the Presence of Accompanying Ions—D. V. Bezuglyi, N. E. Khomenko, and V. I. Lukashenko | 254 | 276 |
| The Use of Ion Exchange Membranes for Controlling and Regulating the Concentration of Certain Complexons—A. V. Gordievskii, É. L. Filippov, and V. S. Shterman | 259 | 282 |
| Spectrographic and Quantometric Analysis of Solutions and Silicate Rocks After Samples Have been Brought into Solution—V. S. Vorob'ev and A. K. Rusanov | 262 | 286 |
| Determination of Individual Radioisotopes in their Mixtures on the Basis of their Beta-Radiation—P. N. Kodochigov and M. P. Glazunov | 268 | 293 |
| Determination of Microamounts of Copper by Means of the Catalytic Oxidation of Hydroquinone by Hydrogen Peroxide in the Presence of Pyridine—I. F. Dolmanova and V. M. Peshkova | 272 | 297 |
| The Polarographic Behavior and Amperometric Determination of Gold on a Rotating Platinum Wire Electrode—A. I. Pashchenko and O. A. Songina | 277 | 303 |
| Determination of Mercury in Coal Processing Products—V. P. Shcherbakov and A. E. Vasilevskaya | 281 | 308 |
| A Chemicospectrographic Method for Determining Indium, Gallium, Bismuth, Antimony, and Arsenic in Germanium Films—O. P. Malkova, A. N. Zhukova, and N. K. Rudnevskii | 285 | 312 |
| Extraction-Photometric Determination of Titanium as Its Diantipyrylmethane Pyrocatechol Complex—M. M. Tananaiko and G. N. Vinokurova | 288 | 316 |
| Extraction of the Phosphotitanomolybdenum Heteropolycomplex. Conditions for Extracting and Concentrating Titanium—Yu. F. Shkaravskii | 291 | 320 |
| Simultaneous Spectrographic Determination of Zirconium, Hafnium, Thorium, and Titanium in Ores—T. M. Moroshkina and M. N. Smirnova | 296 | 325 |
| Color Reactions of Niobium Ions with Certain Reagents Containing the o,o'-Dihydroxyazo Group—I. P. Alimarin, S. B. Savvin, and Yu. M. Dedkov | 299 | 328 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| The Use of 1-Mercaptopropionic Acid Derivatives in Analytical Chemistry. Communication 3. 1-Mercaptopropionic Acid and Some of Its Anilides as Reagents for the Extraction Photometric Determination of Molybdenum—A. I. Busev, A. Naku, and G. P. Rudzit | 306 | 337 |
| Coprecipitation of Plutonium with Ferric Hydroxide—A. I. Novikov and I. A. Starovoit | 314 | 346 |
| Polarographic Determination of Iron in Iron Organic Compounds—E. A. Terent'eva and T. M. Malolina | 319 | 353 |
| Internal Electrolysis without Diaphragms. Communication 4. Quantitative Determination of Nickel—A. P. Lipchinskii and I. I. Kulev | 323 | 357 |
| Simple Attachments for Lowering the Determinable Minimum on Using FÉK-M and FÉK-N-57 Photoelectric Colorimeters. Communication 2—A. B. Blank | 328 | 363 |
| Microdetermination of Carbon and Hydrogen During Combustion of Material in a Wide Tube—N. F. Egorova and T. E. Pokrovskaya | 331 | 366 |
| Elemental Analysis of Heteroorganic Compounds Which are Inflammable in Air. Simultaneous Microdetermination of Carbon, Hydrogen, and Aluminum, or Some Other Element as its Oxide—N. É. Gel'man and I. I. Bryushkova | 334 | 369 |
| A Kinetic Method for Analyzing Mixtures of Acetic Anhydride and Acetic Acid —V. E. Bel'skii and M. I. Vinnik | 340 | 375 |
| Quantitative Determination of Amino Acids by Means of Quinhydrone. Communication 2. Quantitative Paper Chromatography of the Higher ω-Amino Acids—É. P. Usova and K. A. Snesarev | 343 | 379 |
| Microdetermination of Steam Volatile Amines in Natural Water—L. I. Nemtseva, A. D. Semenov, and V. G. Datsko | 347 | 383 |
| Determination of Vinyl Acetate in Mixtures with Vinyl Alkyl Esters—N. I. Ruch'eva and M. P. Filippov | 350 | 386 |
| Polarographic Determination of Dicyclohexylperhydroxydicarbonate —V. N. Dmitrieva, O. V. Meshkova, and V. D. Bezuglyi | 353 | 389 |
| BRIEF COMMUNICATIONS | | |
| Catalytic Detection of Copper Ions—M. Ya. Shapiro | 356 | 393 |
| Chromatographic Analysis of the Products of the Vapor Phase Oxidative Ammonolysis of Quinoline—I. B. Chekmareva, V. I. Trubnikov, and V. G. Berezkin | 358 | 395 |
| Quantitative Analysis of Mixtures of p- and m-Diacetylbenzenes on the Basis of Their Ultraviolet Absorption Spectra—A. G. Sokolov | 360 | 397 |
| Determination and Identification of Carbonyl Compounds Present at Low Concentrations in Hydrocarbons—N. M. Baranova, E. P. Kalyazin, and V. I. Makarov | 362 | 398 |
| CRITICISM AND BIBLIOGRAPHY | | |
| K. B. Yatsimirskii. Kinetic Methods of Analysis—Rudolf A. Heitz and A. A. Bugaevskii. | 364 | 400 |
| Progress in Nuclear Energy. Series IX, Vol. 3, Ed. C. E. Crouthamel, Pergamon Press, 1962 p. 93—A. K. Lavrukhina and S. S. Rodin | 367 | 403 |
| Izrail' Mironovich Korenman (On his sixtieth birthday) | 368 | 404 |
| Moscow Seminar on Analytical Chemistry—I. V. Markova and V. A. Ustinov | 370 | 405 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 19, Number 4 April, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Determination of Salt Content in Nonaqueous Solutions by an Ion Exchange Method—A. P. Kreshkov, A. N. Yarovenko, E. N. Sayushkina, and L. N. Zelenina | 375 | 409 |
| Studies on 8-Mercaptoquinoline (Thiooxine) and Its Derivatives. Communication 30. The Dissociation Constants of 8-Mercaptoquinoline—Yu. A. Bankovskii, L. M. Chera, and A. F. Ievin'sh | 380 | 414 |
| Ion Exchange Electrochromatography of Inorganic Cations on Monocarboxycellulose Paper—I. N. Ermolenko and M. L. Longin | 390 | 425 |
| A Study of the Protolytic Equilibrium of Phenosafranine in Nitric Acid Solutions—A. E. Klygin, G. I. Zhuravlev, and N. S. Kolyada | 395 | 431 |
| Coprecipitation of Microamounts of Cesium with Ammonium Phosphotungstate and Phosphomolybdate—I. Krtil and A. I. Kokorin | 402 | 438 |
| Coprecipitation of Indium with Stannic Sulfide—N. A. Rudnev and R. M. Dzhumaev | 406 | 443 |
| Spectrophotometric Study of the Reactions of Cerium, Lanthanum, and Yttrium with Xylenol Orange—L. S. Serdyuk and V. S. Smirnaya | 413 | 451 |
| The Use of Sodium Ethylenediaminetetracetate for the Photometric Determination of Vanadium, Cobalt, Copper, Nickel, Titanium, and Chromium—K. P. Stolyarov and F. B. Agrest | 418 | 457 |
| Extraction Separation of Niobium from Tantalum and Titanium by Means of Ammonium Pyrrolidinedithiocarbamate—I. M. Gibalo, I. P. Alimarin, and P. Davaadorzh | 428 | 467 |
| Microdetermination of Tantalum on the Basis of the Catalytic Polarographic Currents of Hydrogen Peroxide—L. I. Budarin, T. I. Rumyantseva, and G. G. Sherina | 431 | 470 |
| Extraction Photometric Determination of Cobalt with Thioglycolic p-Toluidide—A. I. Busev and A. Nacu | 436 | 475 |
| Determination of Colloidal Platinum by a Kinetic Method—M. P. Filippov and L. F. Gushchina | 441 | 480 |
| Gas Chromatography in the Analysis of Inorganic Materials (Review)—B. I. Anvaer and B. P. Okhotnikov | 444 | 484 |
| The Use of High Frequency Titration in Organic Analysis. Communication 1. Determination of Sulfur, Chlorine, Bromine, and Iodine—V. M. Gorokhovskii and A. M. Kazymova | 460 | 499 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Separate Determination of Benzyl Chloride, Benzylidene Chloride, and Benzotrichloride in Each Other's Presence in Air—M. S. Bykhovskaya and G. A. Kondaurova | 464 | 504 |
| Analysis of the Liquid Phase Products from the Radiolysis and Radiation Chemical Oxidation of Methanol—B. Ya. Ladygin | 467 | 508 |
| BRIEF COMMUNICATIONS | | |
| Extraction Determination of Small Amounts of Titanium in Aluminum by Means of Its Phosphotitanomolybdate Complex—Yu. F. Shkaravskii | 473 | 514 |
| The Use of 2,3-Dihydroxybenzoic Acid for the Photometric Determination of Trivalent Iron —M. L. Finkel'shteinaite | 475 | 516 |
| The Use of $OsO_4$ as a Catalyst in Titrimetry. Communication 1. Iodo-Arsenitometric Determination of Chlorite in an Alkaline Medium—P. K. Norkus | 478 | 518 |
| Vanadometric Determination of Ascorbic Acid—Z. I. Eremina and V. G. Gurevich | 480 | 519 |
| Fixing the Dry Residue on the End of a Carbon Rod During Spectrographic Analysis of Solutions —V. V. Gusarskii and N. I. Tarasevich | 483 | 522 |
| The Infrared Spectra of $\omega$-Amino Acids in the Carbon Chain Vibration Region—I. A. Titova and K. A. Snesarev | 486 | 525 |
| Quantitative Determination of Vinyl Ethers by a Bromometric Method—A. V. Kalabina, D. E. Stepanov, and F. P. L'vova | 489 | 527 |
| CRITICISM AND BIBLIOGRAPHY | 491 | 529 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry—Yu. Dedkov | 495 | 533 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y

Volume 19, Number 5 May, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Potentiometric Titration of Heterocyclic Nitrogen-Containing Compounds in their Mixtures in a Methyl Ethyl Ketone Medium—A. P. Kreshkov and N. Sh. Aldarova | 499 | 537 |
| Coprecipitation of Iodate and Periodate Ions with Ferric Hydroxide—A. I. Novikov and E. I. Finkel'shtein | 503 | 541 |
| Oscillographic Polarography using a Staircase Voltage Sweep—R. Sh. Nigmatullin and M. R. Vyaselev | 506 | 545 |
| Photometric Determination of Titanium in the Presence of Beryllium by means of 2,7-Dichlorochromotropic Acid—N. N. Basargin, T. N. Kukisheva, and N. V. Solov'eva | 513 | 553 |
| A Study of Reagents for the Spectrophotometric Determination of Gallium—M. K. Akhmedli and E. L. Glushchenko | 516 | 556 |
| Photometric Determination of Zirconium in Steel and Cast by Means of Arsenazo III—S. B. Savvin, D. S. Kadaner, and A. S. Ryabova | 521 | 561 |
| Extraction of Fluorotantalate with Basic Dyes Communication 2. A Comparative Study of some Basic Triphenylmethane Dyes as Reagents for the Extraction Photometric Determination of Tantalum—S. V. Makarova and I. P. Alimarin | 524 | 564 |
| Extraction Photometric Determination of Molybdenum with Tiron—A. I. Busev and G. P. Rudzit | 528 | 569 |
| A Study of the Polarographic Behavior of Complex Uranyl Compounds with Organic Reagents—I. A. Tserkovnitskaya and T. T. Bykhovtseva | 532 | 574 |
| The Properties of Heteropoly Blue Obtained during Reduction of Phosphomolybdic Acid with Thiourea—B. E. Reznik and L. P. Tsyganok | 540 | 584 |
| A Chemico-Spectrographic Method for Analyzing High Purity Bismuth—L. L. Baranova and S. M. Solodovnik | 544 | 588 |
| Elemental Analysis of Fluoroorganic Compounds. Simultaneous Microdetermination of Fluorine, Chlorine, and Nitrogen—N. É. Gel'man and N. I. Larina | 548 | 593 |
| Direct Microdetermination of Oxygen in Organic Compounds—G. D. Gal'pern, I. K. Chudakova, and M. V. Egorushkina | 553 | 598 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE | RUSS. PAGE |
|---|---|---|
| A Polorographic Method for Determining Two Materials with Similar Half-Wave Potentials in Each Other's Presence—L. Ya. Kheifets, E. A. Preobrazheankaya, and V. D. Bezuglyi | 561 | 607 |
| The Use of Gas Liquid Chromatography for the Analysis of Halogen-Containing Silicon and Germanium Organic Compounds—A. D. Snegova, L. K. Markov, and V. A. Ponomarenko | 564 | 610 |
| The Use of Thin Layer Chromatography for the Analysis of Certain Diphenols—A. K. Sopkina and V. D. Ryabov | 568 | 615 |
| Gas Liquid Chromatography and Infra Red Spectra of Isomeric Allyl Guetols and Allyl Guaiacols —T. A. Rudol'fi, M. M. Shchedrina, V. I. Lushchik, and E. D. Laskina | 571 | 619 |
| A Semimicromethod for Studying the Pyrolysis of Solid Mineral Fuels. Communication 2 —I. V. Grinberg, A. A. Salamin, and N. P. Lyatte | 574 | 622 |
| Chronometric Determination of Furfurol in its Aqueous Solutions—V. I. Tikhonova | 580 | 629 |
| BRIEF COMMUNICATIONS | | |
| High Frequency Titration. Communication 11. Determination of Perchloric Acid in its Mixtures with Nitric Acid in a Glacial Acetic Acid Medium—V. M. Bokina, V. A. Zarinskii, and L. M. Shtifman | 585 | 635 |
| The Separation of Strontium and Calcium during the Radiochemical Analysis of Soils —G. G. Glonti | 587 | 637 |
| A Spectrophotometric Study of the Compound of Germanium with N, N'-DI-(2-Hydroxy-5-Sulfophenyl)-C-Cyanoformazan—V. F. Vozisova and V. N. Podchainova | 590 | 640 |
| Determination of Thorium in Total Lanthanide Oxides (Polirit) by a Complexing Chromatographic Technique—D. I. Ryabchikov and M. P. Volynets | 593 | 642 |
| Amperometric Titration of Palladium with 1,2-Cyclohexanedionedioxime—O. M. Ivonina | 595 | 644 |
| Polarographic Determination of Cyanogen Chloride in Aqueous Solution—A. P. Tomilov and S. M. Makarochkina | 598 | 646 |
| Quantitative Determination of Amino Alkyl Esters—T. A. Mikhailova and N. V. Khromov-Borisov | 601 | 648 |
| CRITICISM AND BIBLIOGRAPHY | | |
| G. Ackermann | 603 | 651 |
| | 604 | 652 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry | 605 | 653 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 6 June, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Investigation of the Protolytic Equilibrium of Neutral Red in Hydrochloric Acid Solutions – A. E. Klygin, G. I. Zhuravlev, and I. D. Smirnova | 609 | 657 |
| The Use of Ammonium o-Nitrobenzoate in Analytical Chemistry – A. I. Vasyutinskii and S. P. Egorova | 612 | 660 |
| Determination of the Exchange Capacity of Sulfo-Cation Exchange Resins Using Salts of Acetic Acid – L. G. Korotkina and F. K. Baev | 616 | 664 |
| Determination of Large Amounts of Copper by the Method of Differential Photometry – T. G. Malkina and V. N. Podchainova | 619 | 668 |
| Study of the Microstructure of Cadmium and the Conditions of its Electrolytic Determination – N. I. Goncharova, P. N. Kovalenko, and K. N. Bagdasarov | 622 | 671 |
| Amalgam Polarography of Gallium – K. Zh. Sa$_0$adieva | 628 | 677 |
| Concentration of Substances in Polarographic Analysis. Report 3. Determination of Anions – E. M. Roizenblat and Kh. Z. Brainina | 631 | 681 |
| Rhodamine 3B as a Fluorescent Reagent for Indium – Ya. Glovadskii, A. P. Golovina, L. V. Levshin, and Yu. A. Mittsel' | 643 | 693 |
| Complexometric Titration of Trivalent Thallium Using 4(2-N-Methylanabasineazo) Resorcinol – Sh. T. Talipov and G. K. Nigai | 646 | 697 |
| Spectrophotometric Titration of Zirconium with a Solution of Arsenazo III – N. V. Mel'chakova, M. N. Stanislavskaya, and V. M. Peshkova | 650 | 701 |
| Quantitative Determination of Tantalum on the Basis of its Catalytic Action on the Oxidation of Thiosulfate by Hydrogen Peroxide – K. B. Yatsimirskii, R. P. Morozova, T. A. Voronova, and R. M. Gershkovich | 654 | 705 |
| Determination of Manganese, Chromium, and Vanadium in Alloyed Steels by a Method of Amperometric Titration with Two Indicator Electrodes – A. I. Filenko | 657 | 709 |
| Amperometric Determination of Molybdenum with a Solution of Vanadium (II) Salt – S. I. Gusev and É. M. Nikolaeva | 662 | 715 |

(continued)

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| A Study of the Conditions for the Chromatographic Separation of Tungsten from Titanium, Manganese, and Nickel, Followed by Spectrographic Determination of these Elements – T. M. Moroshkina and Yu. A. Mel'nikov | 667 | 721 |
| Determination of Ammonium Ions in Individual Salts, in their Mixtures with Acids or Ammonia, as well as in Mineral Fertilizers – A. P. Kreshkov, A. N. Yarovenko, and V. N. Nevskaya | 670 | 725 |
| Electrolytic Deposition of Selenium in the Presence of Copper – L. V. Zolotareva and P. N. Kovalenko | 676 | 731 |
| Photometric Determination of Tellurium According to the Weakening of the Color of a Solution of Silicomolybdic Acid – Ku. Tkhan' Long, F. P. Sudakov, and Z. F. Shakhova | 679 | 734 |
| Separation and Determination of Halogens when they are Present Together in Organic Compounds – B. N. Lundin and T. I. Sukhorosova | 685 | 742 |
| Study of Tetrahydroxy-p-Benzoquinone as a Selective Reagent for Lead – V. A. Razumov and T. K. Aidarov | 689 | 746 |
| Microelementary Analysis Using Gas Chromatography Determination of Carbon, Hydrogen, and Nitrogen in Organic Compounds – A. A. Moskvina, L. V. Kuznetsova, S. L. Dobychin, and M. I. Rozova | 692 | 749 |
| Determination of Cyclohexanone Peroxides by a Polarographic Method – V. L. Antonovskii and Z. S. Frolova | 696 | 754 |
| Determination of Glycols by a Method of Gas-Liquid Chromatography – V. N. Balakhontseva and R. M. Poltinina | 699 | 757 |
| Method of Thin-Layer Chromatography on a Fixed Layer of Cellulose Powder as Applied to the Analysis of Ethaperazine and Intermediate Products – V. M. Svetlaeva and S. V. Zhuravlev | 703 | 761 |
| BRIEF COMMUNICATIONS | | |
| The Use of Derivatives of 1-Mercaptopropionic Acid in Analytical Chemistry. Report 4. Extraction-Photometric Determination of Molybdenum in Steels with p-Phenetidide-1-Mercaptopropionic Acid – A. I. Busev, G. P. Rudzit, and A. Naku | 709 | 767 |
| Separation of Germanium from Trivalent Arsenic by a Method of Ion-Exchange Chromatography – R. M. Dranitskaya and Liu Chen-chuang | 712 | 769 |
| Quantitative Determination of the Ortho- and Paraisomers of Cetain Alkyl- and Terpenophenols by a Spectrophotometric Method – R. I. Sharapova and T. A. Rudol'fi | 714 | 771 |
| M. Pinta. "Methods of Study and Determination of Traces of Elements. Absorption Spectrophotometry, Emission Spectrography, Polarography" – Rudol'f A. Geits and V. A. Naumenko | 718 | 775 |
| CHRONICLE | | |
| All-Union Conference on the Production and Analysis of Elements of Special Purity – A. A. Tumanov | 721 | 777 |
| Moscow Seminar on Analytical Chemistry – Yu. M. Dedkov | 724 | 779 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 7 July, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| The Effect of Recrystallization on the Coprecipitation of Cations with Copper (II), Mercury (II), and Silver (I) Sulfides — N. A. Rudnev and G. I. Malofeeva | 729 | 785 |
| The Mechanism of the Color Reactions of Arsenazo III and its Analogs with Metal Cations — A. A. Nemodruk | 735 | 790 |
| Pyridylazo Compounds as Metallochromic Indicators. Communication 1. 5-(2-Pyridylazo)-2-Monoethylaminoparacresol as an Analytical Reagent — S. I. Gusev and L. M. Shchurova | 743 | 799 |
| The Use of Natural Fats as the Liquid Stationary Phase in Gas Liquid Chromatography — B. A. Rudenko, L. G. Potapova, and V. F. Kucherov | 746 | 802 |
| Concentration of Material in Polarographic Analysis. Communication 4. Concentration as the Hydroxide — Kh. Z. Brainina | 753 | 810 |
| A Polarographic Study of the Interaction of Ammonium Ions with Formaldehyde in Aqueous Solution — Ya. I. Tur'yan and T. A. Cheremukhina | 757 | 815 |
| The Mass Spectra of Some Solid Materials and Their Interpretation — M. S. Chupakhin and G. G. Glavin | 763 | 821 |
| 4-Sulfophenyl-3-Methylpyrazolone-5 as a Reagent for the Fluorimetric Determination of Dysprosium and Terbium — L. I. Kononenko, M. A. Tishchenko, and N. S. Poluéktov | 770 | 829 |
| A Spectrophotometric Study of Complex Formation Between Titanium (IV) and 2,7-Dichloro-chromotropic Acid — N. N. Basargin and T. V. Petrova | 775 | 835 |
| Photometric Determination of Zirconium in Magnesium and Aluminum Alloys by Means of Quercetin — L. Ya. Polyak and I. S. Bashkirova | 781 | 842 |
| Extraction of Fluorotantalate with Basic Dyes. Communication 3. The Composition of Fluorotantalate Compounds with Triphenylmethane Dyes — S. V. Makarova and I. P. Alimarin | 786 | 847 |
| Complexometric Titration of Bismuth with 4(2-N-Methylanabasineazo)Resorcinol — Sh. T. Talipov and K. G. Nigai | 789 | 851 |
| Trihydroxyfluorones as Reagents for the Photometric Determination of Tungsten E. N. Poluéktova and V. A. Nazarenko | 793 | 856 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Determination of Ultramicroamounts of Manganese in Natural Water by a Catalytic Method with a Photometric Finish — S. G. Oradovskii | 800 | 864 |
| Determination of Small Amounts of Sulfur in Beryllium, Zirconium, Niobium, and Their Oxides — A. F. Fioletova | 804 | 868 |
| Determination of Tellurium in Selenium, Lead, Bismuth, Copper, and Other Products of the Lead-Zinc Industry — A. I. Busev, N. L. Babenko, and M. N. Chepik | 807 | 871 |
| Simultaneous Amperometric Determination of Zirconium and Sulfur in Organic Compounds — E. A. Terent'eva and M. V. Bernatskaya | 812 | 876 |
| Separate Determination of Styrene and α-Methylstyrene by a Polarographic Method — V. D. Bezuglyi, Yu. P. Ponomarev, and V. N. Dmitrieva | 817 | 881 |
| A Potentiometric Method for Titrating Diamines and Their Mixtures in Differentiating Solvent Media — A. P. Kreshkov, L. N. Bykova, and I. D. Pevzner | 825 | 890 |
| BRIEF COMMUNICATIONS | | |
| Complexometric Determination of Zinc in Iron Alloys — L. E. Pechentkovskaya and T. N. Nazarchuk | 831 | 897 |
| Determination of Zirconium in Alloys by Means of N-Benzoylphenylhydroxylamine — V. F. Luk'yanov and E. M. Knyazeva | 834 | 899 |
| Microdetermination of Carbonyl Groups by Oximation in the Presence of Hexamethyleneimine — A. P. Terent'ev, S. I. Obtemperanskaya, and Nguen Dyk Khoe | 837 | 902 |
| Gas Chromatography of Cresol Isomers — T. A. Rudol'fi, R. I. Sharapova, and V. I. Lushchik | 839 | 903 |
| Analysis of Certain $\Delta^4$-Pregnene-Dione-3,20 Derivatives by a Paper Chromatographic Method — A. A. Chemerisskaya, N. M. Ivanova, and L. N. Larina | 842 | 905 |
| CRITICISM AND BIBLIOGRAPHY | | |
| O. I. Milner, "Analysis of Petroleum for Trace Elements" — Reviewed by S. B. Savvin | 845 | 908 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry — Yu. M. Dedkov | 846 | 909 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 19, Number 8 August, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Polarographic Characteristics of the Anodic Peaks of Elements in Amalgam Polarography with Preliminary Accumulation. Communication 1 — M. S. Zakharov and A. G. Stromberg | 851 | 913 |
| Polysiloxanes as Liquid Stationary Phases in Gas Liquid Chromatography — B. A. Rudenko, L. G. Potapova, and V. F. Kucherov | 855 | 917 |
| The Reducing Properties of Divalent Iron in the Presence of $S_2O_3^{2-}$ Ions — I. A. Tserkovnitskaya and T. T. Bykhovtseva | 859 | 922 |
| Halogen Complexes of Gold (III) with Pyrazolone Derivatives and their Use for Separation of Gold and Tellurium — A. I. Busev and N. L. Babenko | 862 | 926 |
| Substoichiometric Determination of Traces of Mercury by Activation Analysis and Isotopic Dilution — J. Ruzicka, I. Stary, and A. Zeman | 868 | 932 |
| Determination of Milligamma Amounts of Mercury by Atomic Absorption in the Gas Phase — N. S. Poluektov, R. A. Vitkun, and Yu. V. Zelyukova | 873 | 937 |
| The Selection of Complexometric Indicators for Scandium from a Series of Chromotropic Acid Azoderivatives — A. I. Cherkeso and N. M Alykov | 879 | 943 |
| The Choice of Complexing Agents for the Paper Chromatographic Separation of the Rare Earths. The Use of Trichloroacetic Acid — G. M. Varshal and M. M. Senyavin | 883 | 947 |
| Separation of Indium from Iron, Aluminum, Chromium, Manganese, Nickel, and Cobalt by Precipitation as Its Sulfide — E. N. Kunenkova and É. A. Osroumov | 890 | 955 |
| Determination of Thallium as a Microimpurity in Special Purity Indium by Amalgam Polarography with Preliminary Accumulation — N. A. Mesyats, B. F. Nazarov, M. S. Zakharov, and A. G. Stromberg | 894 | 959 |
| Pyridylazo Compounds as Metallochromic Indicators. Communication 2. Complexometric Determination of Bismuth in the Presence of 5-(2-Pyridyl-azo)-2-monoethylamino-paracresol as Indicator — S. I. Gusev and L. M. Shchurova | 898 | 964 |
| Photometric Determination of Tellurium as Phosphotellurousmolybdic Acid — Ku Tkhan Long, F. P. Sudakov, and Z. F. Shakhova | 902 | 968 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Determination of Impurities in Special Purity Silicon Dioxide by a Spectrographic Method after Preliminary Concentration – Kh. I. Zil'bershtein, O. N. Nikitina, A. V. Nenarokov, and E. S. Panteleev | 907 | 975 |
| Analysis of Alloys of Rare Earth Elements with Certain Metals and Oxides – T. N. Nazarchuk, O. I. Popova, L. N. Kugai, E. V. Dzerzhanovskaya, G. T. Kabannik, S. F. Boremskaya, and N. K. Chugunnaya | 911 | 980 |
| The Interaction of Elemental Tellurium and Copper, Lead, and Silver Tellurides with Different Solvents – M. I. Erdenbaeva and Z. M. Usenova | 916 | 985 |
| The Use of Complex Compounds in Phase Analysis. Communication 1. Determination of the Copper of "Active" Sulfides – M. I. Timerbulatova and B. S. Khristoforov | 919 | 989 |
| Analysis of Titanium and Thorium Sulfides – G. N. Dubrovskaya and I. N. Godovannaya | 922 | 993 |
| The Use of Pyrazoline-3,4-Dicarboxylic Acid Dimethyldiamide as a Reducing Agent for Phosphomolybdic Acid – N. B. Vinogradova, L. V. Dubovskaya, and Yu. G. Zhukovskii | 925 | 997 |
| The Possibilities and Limitations of Analysis by β-Radiation Back Scattering (Review) – V. G. Guglya | 929 | 1002 |
| A New Method for the Extraction Photometric Analysis of Alkaloid Mixtures – V. S. Konyushko | 940 | 1012 |
| A Pulse Polarographic Method for Determining Furfural in Stabilized Soil – V. I. Bodyu and Kh. Sh. Khariton | 949 | 1021 |
| A Potentiometric Method for Determing Vinyl Monomers – L. N. Balyatinskaya, A. P. Kreshkov, and Ya. I. Tur'yan | 952 | 1025 |
| BRIEF COMMUNICATIONS | | |
| So-called Phenylthiohydantoic Acid as an Analytical Reagent – E. V. Vladzimirskaya | 956 | 1029 |
| Amperometric Titration of Tetravalent Germanium – R. M. Dranitskaya and E. V. Iashvili | 959 | 1031 |
| Polarographic Determination of Tin Tetraphenyl in Polystyrene and Polyvinyl Chloride – V. D. Bezuglyi, E. A. Preobrazhenskaya, and V. N. Dmitrieva | 961 | 1033 |
| LETTER TO THE EDITOR | | |
| Remarks on the Article by D. I. Ryabchikov, M. P. Volynets, V. A. Zarinskii, and V. I. Ivanov. | 963 | 1036 |
| Reply to the "Remarks" by I. I. Chernyaev, V. A. Golovnya, and A. K. Molodkin | 965 | 1038 |
| Ivan Vladimirovich Tananaev (On his Sixtieth Birthday) | 968 | 1041 |
| Inter-College Conference on the Analytical and Physico-chemical Properties of the Complex Compounds of Rare and Nonferrous Metals | 970 | 1043 |
| The Moscow Seminar on Analytical Chemistry | 972 | 1044 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 9 September, 1964

## CONTENTS

| | PAGE ENG. | RUSS. |
|---|---|---|
| A Radiometric Method for the Isotopic Analysis of Mixtures of Cerium-141 and Cerium-144, Strontium-89 and Strontium-90 in Samples with a Low Total Activity—S. V. Belov and N. V. Sidorov | 977 | 1049 |
| The Use of Filter Paper for the Microquantitative Determination of Silver in the Presence of Certain Elements—E. Koev | 981 | 1053 |
| Photometric Determination of Gold and Tellurium in Copper Metal and in Intermediates from Copper Production—A. I. Busev, N. L. Babenko and M. N. Chepik | 984 | 1057 |
| Extraction Separation of Thallium by Means of 1,5-Dibenzimidazolylformazans —S. A. Lomonosov, Yu. A. Rybakova, V. N. Podchainova and N. P. Bednyagina | 989 | 1062 |
| A Spectrophotometric Study of Organic Reagents for Scandium—A. I. Cherkesov and N. M. Alykov | 994 | 1067 |
| The Use of Cinnamic Acid in Analytical Chemistry. Communication 6. Precipitation of Scandium and its Removal from Manganese, Nickel, Cobalt, and Zinc —É. A. Ostroumov and I. I. Volkov | 999 | 1073 |
| New Photometric Methods for Determining Niobium and Tantalum in Metals and Alloys. Communication 3. Photometric Determination of Tantalum with 1-(2-Pyridylazo)—Resorcinol —S. V. Elinson and A. T. Rezova | 1003 | 1078 |
| Determination of Microgram Amounts of Nickel in Natural Materials After its Preliminary Concentration—K. S. Pakhomova, L. P. Volkova and V. V. Gorshkov | 1009 | 1085 |
| Determination of Silver, Gold, Palladium, Platinum, and Rhodium by Atomic—Absorption Flame Spectrophotometry—V. L. Ginzburg, D. M. Livshits and G. I. Satarina | 1013 | 1089 |
| Determination of the Hydrogen Content of a Mixture of Nitrogen Oxides by Means of Thermal Conductivity—V. P. Ryabov | 1018 | 1094 |
| Determination of Microamounts of Xenon—Yu. A. Shukolyukov and L. K. Levskii | 1022 | 1099 |
| Spectrographic Determination of Impurities in Beryllium Oxide by Means of a Hollow Cathode—G. Z. Pevtsov and V. Z. Krasil'shchik | 1029 | 1106 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Photometric Determination of Microimpurities in Rhenium and its Preparations —D. I. Ryabchikov, A. I. Lazarev and V. I. Lazareva | 1033 | 1110 |
| Chemico-Spectrographic Analysis of Pure Nickel and Cobalt—S. R. Kreimer, P. M. Mikhailov, A. V. Stogova and A. S. Lomekhov | 1040 | 1117 |
| Determination of Trace Amounts of Allene and Allylene in Purified Propane—Propylene Fractions by Gas Liquid Chromatography—M. S. Vigdergauz and M. I. Afanas'ev | 1045 | 1122 |
| The Quantitative Determination of Alkyl Lithium Compounds by a Titrimetric Benzyl Chloride Method—Yu. N. Baryshnikov and G. I. Vesnovskaya | 1050 | 1128 |
| Determination of Crotonylideneacetone and Diacetone Alcohol in Each Other's Presence —N. G. Polyanskii, V. S. Markevich and N. E. Shtivel' | 1054 | 1132 |
| A Chronoconductometric Method for Determining Sodium Polymethacrylate, Its Copolymer with Methyl Methacrylate, and Analysis of Mixtures with NaOH —T. A. Khudyakova, A. P. Aurov and V. I. Krylova | 1058 | 1137 |
| Iodochlorometric Determination of Mono- and Dinitrophenols—O. N. Karpov | 1062 | 1142 |
| Quantitative Determination of Amino Acids with Hydroquinone. Communication 3. A Study of the Reaction Between ω-Amino Acids and p-Benzoquinone —E. P. Usova and K. A. Snesarev | 1066 | 1147 |
| Photometric Determination of Small Amounts of Pyridine Bases in Phenols —G. V. Semukhina, V. D. Barskii and V. V. Noskov | 1072 | 1155 |
| BRIEF COMMUNICATIONS | | |
| A "Conducting Glass" Electrode for Electrometric Methods of Analysis —V. Ya. Dubrovinskii and V. N. Kumok | 1076 | 1159 |
| The Photometric Determination of Beryllium with Beryllon II—T. A. Belyavskaya and I. F. Kolosova | 1079 | 1162 |
| Spectrographic Determination of Palladium and Ruthenium in Alumina Based Catalysts —B. M. Talalaev | 1081 | 1163 |
| Quantitative Determination of Potassium Peroxycarbonate by an Iodometric Method in Alkaline Media—N. E. Khomutov and M. F. Sorokina | 1083 | 1165 |
| Separate Determination of Lead, Zinc, Cadmium, and Mercury Selenates by Means of Sodium Amalgam—Z. M. Usenova, G. F. Mamonova, and M. I. Erdenbaeva | 1086 | 1168 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry—Yu. A. Zolotov | 1089 | 1171 |
| Twentieth International Congress on Theoretical and Applied Chemistry | 1091 | 1173 |



The Russian date "Podpisano k pechati" of this issue was 8/18/1964 . This is equivalent to "approved for printing." Publication did not occur prior to this date, but must be assumed to have taken place reasonably soon thereafter.

Publisher

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* (ZHURNAL ANALITICHESKOI KHIMII)

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N.Y.

Volume 19, Number 10 October, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Determination of Methyl Phosphinic Acid and its Derivatives by Titration in Nonaqueous Media—A. P. Kreshkov, V. A. Drozdov, and N. A. Kolchina | 1095 | 1177 |
| Coprecipitation of Small Amounts of Arsenic with Metal Hydroxides—V. I. Plotnikov and L. P. Usatova | 1101 | 1183 |
| Elimination of the Mutual Effect of the Elements During Spectrographic Analysis in Connection with the Problem of Standards—N. B. Kubasova and G. I. Kibisov | 1105 | 1188 |
| Determination of the Exchange Capacity of the Cl-Form of Strong and Weak Anion Exchange Resins by Direct Argentometric Titration—N. G. Polyanskii, M. A. Shaburov, and A. A. Efimov | 1108 | 1192 |
| Cementation of Antimony with Cadmium Metal—L. D. Sokolov, P. N. Kovalenko, and K. N. Bagdasarov | 1112 | 1196 |
| A New Method for Determining Mercury in Coal—A. E. Vasilevskaya, V. P. Shcherbakov, and E. V. Karakozova | 1116 | 1200 |
| Differential Spectrophotometric Determination of Aluminum with Chrome Azurol S —V. N. Tikhonov | 1120 | 1204 |
| A Comparative Study of Some Reagents for Scandium—D. I. Ryabchikov, S. B. Savvin, and Yu. M. Dedkov | 1125 | 1210 |
| Potentiometric Titration of Titanium (IV) with Vanadium (II) Sulfate Solution —P. K. Agasyan, E. R. Nikolaeva, and R. M. Ryskulbekova | 1133 | 1219 |
| The Use of Cinnamic Acid in Analytical Chemistry. Communication 7. Separation of Titanium from Iron, Aluminum, Chromium, and Other Elements—I. I. Volkov and É. A. Ostroumov | 1137 | 1223 |
| Amperometric Determination of Palladium with Thiourea using a Rotating Platinum Electrode —M. B. Bardin, N. S. Balandina, and G. I. Todorova | 1141 | 1228 |
| Determination of the Water Content of Tributyl Phosphate on the Basis of its Absorption Spectra in the Near Infrared—A. V. Karyakin and A. V. Petrov | 1146 | 1234 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| The Use of Pyridine Azo Compounds in Analytical Chemistry (Review)—A. I. Busev and V. M. Ivanov | 1150 | 1238 |
| Elemental Organic Analysis by a Wet Oxidation Method. Communication 8. Analysis of Silicophosphoaluminoorganic Compounds—B. M. Luskina, A. P. Terent'ev, and N. A. Gradskova | 1164 | 1251 |
| Quantitative Determination of Germanium in Germanoorganic Compounds—V. A. Klimova and M. D. Vitalina | 1167 | 1254 |
| Polarographic Determination of Benzanthrone, Bromobenzanthrone, and Dibromobenzanthrone in each Other's Presence—V. D. Bezuglyi, L. Ya. Kheifets, and E. A. Preobrazhenskaya | 1171 | 1258 |
| BRIEF COMMUNICATIONS | | |
| A Study of the Solubility of Lanthanum, Cerium, and Praseodymium Oxalates by a Photometric Method Involving Arsenazo III—V. F. Luk'yanov and N. G. Moshchanskaya | 1176 | 1264 |
| The Use of a Continuous Radiation Source Coupled with a Medium Dispersion Monochromator in Atomic Absorption Analysis—N. P. Ivanov and N. A. Kozyreva | 1178 | 1266 |
| Separation of Antimony by Cementation Followed by its Photometric Determination with Brilliant Green—L. A. Soldatova, Z. G. Kilina, and G. A. Kataev | 1180 | 1267 |
| A Study of Complex Formation between Molybdenum and Certain Dioximes—V. M. Peshkova and N. G. Ignat'eva | 1182 | 1269 |
| Distinguishing between β-Naphthol and α-Naphthol and the Photometric Determination of β-Naphthol—M. P. Babkin | 1184 | 1271 |
| A Rapid Titrimetric Method for the Determination of Carbon Dioxide in Carbonate Rocks and Soils—V. E. Sokolovich | 1186 | 1272 |
| Detection of Sodium Thiopental and Certain Barbituric Acid Derivatives—V. N. Lobanov | 1189 | 1274 |
| LETTERS TO THE EDITIOR | | |
| The Fluorescent Determination of Indium by Means of Rhodamine Group Dyes (Apropos the article by A. K. Babko and Z. I. Chalaya)—I. A. Blyum | 1192 | 1277 |
| Reply to the Notes by I. A. Blyum "On the Fluorescent Determination of Indium by Means of Rhodamine Group Dyes—A. K. Babko and Z. I. Chalaya | 1194 | 1278 |
| CRITICISM AND BIBLIOGRAPHY | | |
| I. M. Korenman. Introduction to Quantitative Ultramicroanalysis—Reviewed by M. N. Petrokova | 1196 | 1280 |
| H. J. M. Bowen and D. Gibbons. Radioactivation Analysis—Reviewed by Yu. V. Yakovlev | 1197 | 1282 |
| BIOGRAPHY | | |
| Anatolii Terent'evich Pilipenko (On his Fiftieth Birthday) | 1198 | 1282 |
| CHRONICLE | | |
| Moscow Seminar on Analytical Chemistry | 1199 | 1283 |
| Organizing Committee of the Ninth Mendeleev Session on General and Applied Chemistry | 1201 | 1284 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* **ZHURNAL ANALITICHESKOI KHIMII**

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 11 November, 1964

## CONTENTS

| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| A Study of the Composition of Complex Compounds by Means of Masking Addenda —A. F. Kuteinikov and S. A. Lysenko | 1205 | 1289 |
| Differential Determination of Weak Acids by Spectrophotometric Titration in Nonaqueous Solution—A. P. Kreshkov, Yu. Ya. Mikhailenko, and L. A. Tumovskii | 1209 | 1293 |
| Electrochemical Masking of Irreversible Polarographic Waves—I. E. Bykov | 1214 | 1299 |
| The Use of Formazans in Analytical Chemistry. Communication 4. Determination of Yttrium by Means of N, N'-Di-(2-Hydroxy-5-Sulfophenyl)-C-Cyanoformazan —N. L. Vasil'eva and M. I. Ermakova | 1219 | 1305 |
| The Use of Polyphenol Derivatives for Increasing the Sensitivity of the Spectrophotometric Determination of Certain Rare Earths—K. V. Tserkasevich and N. S. Poluéktov | 1223 | 1309 |
| Amperometric Titration of Thallium with Dithiocarbamates—Yu. I. Usatenko and L. M. Kutsenko | 1228 | 1315 |
| A Polarographic Study of the Catalytic Waves of Hydrogen Peroxide Reduction in the Presence of Zirconium—R. K. Sharipov and O. A. Songina | 1234 | 1322 |
| The Use of Benzenesulfinic Acid for Plutonium Determination—M. S. Milyukova | 1238 | 1326 |
| The Use of Ion Exchange Chromatography for Separating Thorium from Cerium —I. P. Alimarin, A. M. Medvedeva, and M. A. Burlova | 1243 | 1332 |
| Extraction of Niobium and Tantalum with Trioctylamine from Oxalic and Tartaric Acid Solutions—A. N. Nevzorov and L. A. Bychkov | 1246 | 1336 |
| A Study of the Behavior of Ultramicroconcentrations of Antimony, Bismuth, and Tin in a Nonaqueous Mixture of $SiCl_4$(6.3 mol. %)—n-$C_3H_7OH$ by Amalgam Polarography with Accumulation—Yu. A. Karbainov and A. G. Stromberg | 1250 | 1341 |
| A Study of the Halogen Complexes of Trivalent Antimony with Certain Pyrazolone Derivatives and their Analytical Application—A. I. Busev and E. S. Bogdanova | 1255 | 1346 |
| Oscillographic Determination of Nickel in Zinc Electrolytes after Cementation of the Nickel with Zinc—P. N. Kovalenko and M. M. Evstifeev | 1263 | 1355 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Photometric Determination of Arsenic, Germanic, and Silicic Acids in Aqueous Solution by Means of Molybdate and Pyrazoline-3,4-Dicarboxylic Dimethyldiamide —Yu. G. Zhukovskii | 1268 | 1361 |
| A New Variant of a Micromethod for Water Determination by Fischer's Reagent —A. M. L'vov, V. A. Klimova, and A. I. Palii | 1272 | 1366 |
| Mass-Spectrometric Determination of Helium in Argon and Natural Gases—V. Z. Mitrofanov and A. A. Makarov | 1277 | 1372 |
| Determination of Oxygen in Metals and Inorganic Compounds by the Method of Reduction Fusion in an Inert Gas Medium (Review)—A. M. Vasserman and Z. M. Turovtseva | 1282 | 1377 |
| Gravimetric Microchromatographic Analysis of Bitumens (A Study of the Group Composition of Natural Petroleum and Bitumen)—I. V. Grinberg and N. A. Shved | 1290 | 1385 |
| The Use of Paper Chromatography for Analyzing the Higher Aliphatic Dicarboxylic Acids and their Esters—L. A. Salmin', L. A. Mirkind, and A. I. Kamneva | 1295 | 1391 |
| A Chemiluminescent Method for Determining Small Amounts of Certain Isomeric Benzene Derivatives Containing $NO_2$, $NH_2$, and OH-Groups, and for Analyzing their Mixtures —A. A. Ponomarenko and B. I. Popov | 1300 | 1397 |
| Polarographic Determination of Anthraquinone and Carbazole in Anthracene—V. D. Bezuglyi, L. Ya. Kheifets, and E. A. Preobrazhenskaya | 1304 | 1402 |
| BRIEF COMMUNICATIONS | | |
| Determination of Ferrocene—B. P. Nikol'skii, M. S. Zakhar'evskii, and A. A. Pendin | 1308 | 1407 |
| Determination of Hydrogen in Refractory Metal Hydrides—M. M. Antonova | 1310 | 1408 |
| Determination of Zirconium and Hafnium in Each Other's Presence in Molybdenum-Based Alloys by Means of Ion Exchange Chromatography—D. I. Ryabchikov and V. E. Bukhtiarov | 1313 | 1411 |
| Determination of Small Amounts of Acetone in Acetic Acid—A. S. Maslennikov and G. N. Poryvaeva | 1315 | 1412 |
| A Chromatographic Method for Determining the Purity of o-Vanillin—A. P. Terent'ev, E. G. Rukhadze, A. V. Kamernitskii, G. P. Talyzenkova, and G. V. Panova | 1317 | 1414 |
| Detection of Chloronitrobenzenes—V. I. Zetkin, E. V. Zakharov, M. Ya. Fishkis, and I. M. Kolesnikov | 1318 | 1415 |
| LETTERS TO THE EDITOR | | |
| Apropos the Article by G. D. Gal'pern and N. N. Bezinger, "Determination of Primary, Secondary, and Tertiary Amino Groups in Each Other's Presence" —E. Yu. Khmel'nitskaya and E. A. Gribova | 1320 | 1417 |
| Reply to the Observations Made by E. Yu. Khmel'nitskaya and E. A. Gribova Apropos the Article by G. D. Gal'pern and N. N. Bezinger—G. D. Gal'pern and N. N. Bezinger | 1322 | 1418 |
| CRITICISM AND BIBLIOGRAPHY | | |
| I. M. Korenman. "The Analytical Chemistry of Potassium." Series "The Analytical Chemistry of the Elements."—Reviewed by I. S. Mustafin and N. M. Frumina | 1323 | 1419 |
| CHRONICLE | | |
| N. A. Rudnev (On his sixtieth birthday) | 1325 | 1421 |

(ZHURNAL ANALITICHESKOI KHIMII)
EDITORIAL BOARD

I. P. Alimarin
*(Editor-in-Chief)*
A. K. Babko
A. I. Busev
*(Secretary)*
P. N. Palei
D. I. Ryabchikov
*(Assistant Editor)*
Z. F. Shakhova
I. V. Tananaev
A. P. Terent'ev
A. P. Vinogradov
Yu. A. Zolotov

JOURNAL OF
# ANALYTICAL CHEMISTRY
OF THE USSR

*A translation of* **(ZHURNAL ANALITICHESKOI KHIMII)**

*A publication of the Academy of Sciences of the USSR*

© 1965 CONSULTANTS BUREAU ENTERPRISES, INC.
227 West 17th Street, New York 11, N. Y.

Volume 19, Number 12 December, 1964

## CONTENTS

| | PAGE ENG. | RUSS. |
|---|---|---|
| Study of the Systems Cupferron (Its Derivatives)—Water—Chloroform. Communication 2. Joint Determination of the Formation and Distribution Constants and of the Molar Extinction Coefficients of Cupferron, Neocupferron, and N-Benzoylphenylhydroxylamine (BPHA)—N. P. Komar' and I. G. Per'kov | 1329 | 1425 |
| High Frequency Titration. Communication 12. Back Titration of Acids in An Aqueous Dioxane Medium—V. A. Zarinskii and I. A. Gur'ev. | 1333 | 1429 |
| Catalytic Polarographic Currents. Communication 1. Determination of Ultrasmall Amounts of Molybdenum in High Purity Indium on the Basis of the Catalytic Wave of Nitrate Ions—R. U. Bikbulatova and S. I. Sinyakova | 1338 | 1434 |
| Concentration of Materials in Polarographic Analysis. Communication 5. The Sensitivity of Anion Determination—Kh. Z. Brainina and E. M. Roizenblat | 1345 | 1442 |
| Analysis of Solutions by Means of a Spark Discharge—G. I. Zhuravlev and M. F. Nemtseva | 1351 | 1449 |
| The Reaction of Germanium with Purpurogallin—V. A. Nazarenko and E. N. Poluéktova | 1359 | 1459 |
| Amperometric Titration of Titanium and Zirconium with Neocupferron Solution —Z. A. Gallai, I. P. Alimarin, N. M. Sheina, and L. A. Morozova | 1363 | 1464 |
| Photometric Determination of Titanium in Niobium Based Alloys by Means of Diantipyrylmethane—L. Ya. Polyak | 1367 | 1468 |
| Extraction Photometric Determination of Niobium by Means of Gossypol —Sh. T. Talipov and L. A. Khadeeva | 1370 | 1471 |
| Electrolytic Separation of Molybdenum and Rhenium and their Determination —Yu. M. Gavrilko, P. N. Kovalenko, and K. N. Bagdasarov | 1376 | 1478 |
| Determination of Rhenium in Materials Containing Niobium Carbide or Zirconium Carbide—T. G. Kibisova and T. M. Putvinskaya | 1379 | 1482 |
| A Study of the State of Water in Oxygen-Containing Organic Compounds in the Presence of HCl and Determination of Its Amount on the Basis of Its Absorption Spectra in the Near Infrared—A. V. Karyakin and A. V. Petrov | 1382 | 1486 |

**Annual Subscription: $135** **Single Issue: $30** **Single Article: $15**

*All rights reserved. No article contained herein may be reproduced for any purpose whatsoever without permission of the publisher. Permission may be obtained from Consultants Bureau Enterprises, Inc., 227 West 17th Street, New York City, United States of America.*

# CONTENTS (continued)


| | PAGE ENG. | PAGE RUSS. |
|---|---|---|
| Determination of Small Amounts of Boron in the Presence of Fluorine and Silicon —D. I. Ryabchikov and G. E. Kuril'chikova | 1389 | 1495 |
| Separate Determination of Hydrofluoric, Sulfuric, and Fluosilicic Acids in Their Mixtures —E. V. Bezrogova | 1392 | 1498 |
| An Extraction Photometric Method for Determining Small Amounts of Selenium by Means of 1,1'-Diphenylhydrazine—V. I. Murashova and S. G. Sushkova | 1396 | 1503 |
| Analysis of Mixtures of Nitro-o-Toluidine Isomers and Mixtures of Nitro-p-Toluidine Isomers by Spectrophotometric Titration in Nonaqueous Solution—A. P. Kreshkov and V. I. Vasil'ev | 1400 | 1508 |
| BRIEF COMMUNICATIONS | | |
| Chlorophosphonazo III—A New Reagent for Strontium—A. M. Lukin, S. L. Zelichenok, and T. V. Chernysheva | 1404 | 1513 |
| Titrimetric Determination of Niobium in Refractory Compounds by Means of 8-Hydroxyquinoline—L. S. Kozyreva, A. F. Kuteinikov, and N. P. Zharova | 1406 | 1515 |
| Possible Errors During the Determination of Thallium in the Presence of Iron —N. I. Bashilova and N. I. Nelyapina | 1408 | 1516 |
| Spectrochemical Determination of Traces of Titanium, Zirconium, Hafnium, and Thorium in Solution—T. M. Moroshkina and M. N. Smirnova | 1412 | 1519 |
| CRITICISM AND BIBLIOGRAPHY | | |
| P. Souchay. Polyanions and Polycations—N. G. Polyanski | 1415 | 1522 |
| P. Ya. Yakovlev and E. F. Yakovleva. Technical Analysis in Metallurgy —V. V. Stepin and E. V. Silaeva | 1417 | 1523 |
| Arne E. Nielsen. Kinetics of Precipitation—A. I. Busev | 1418 | 1524 |
| New Books | 1419 | 1525 |
| AUTHOR INDEX, Vol. 19, 1964 | 1423 | |
| TABLES OF CONTENTS, Vol. 19, 1964 | 1427 | |